Dell™ Studio 1535/1536
Quick Reference Guide

Model PP33L

Notes, Notices, and Cautions

NOTE: A NOTE indicates important information that helps you make better use of your computer.

NOTICE: A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

CAUTION: A CAUTION indicates a potential for property damage, personal injury, or death.

If you purchased a Dell™ n Series computer, any references in this document to Mcrosoft® Windows® operating systems are not applicable.

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Model PP33L

March 2008 **P/N F434C** **Rev. A00**

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Finding Information

NOTE: Some features may be optional and may not ship with your computer. Some features may not be available in certain countries.

NOTE: Additional information may ship with your computer.

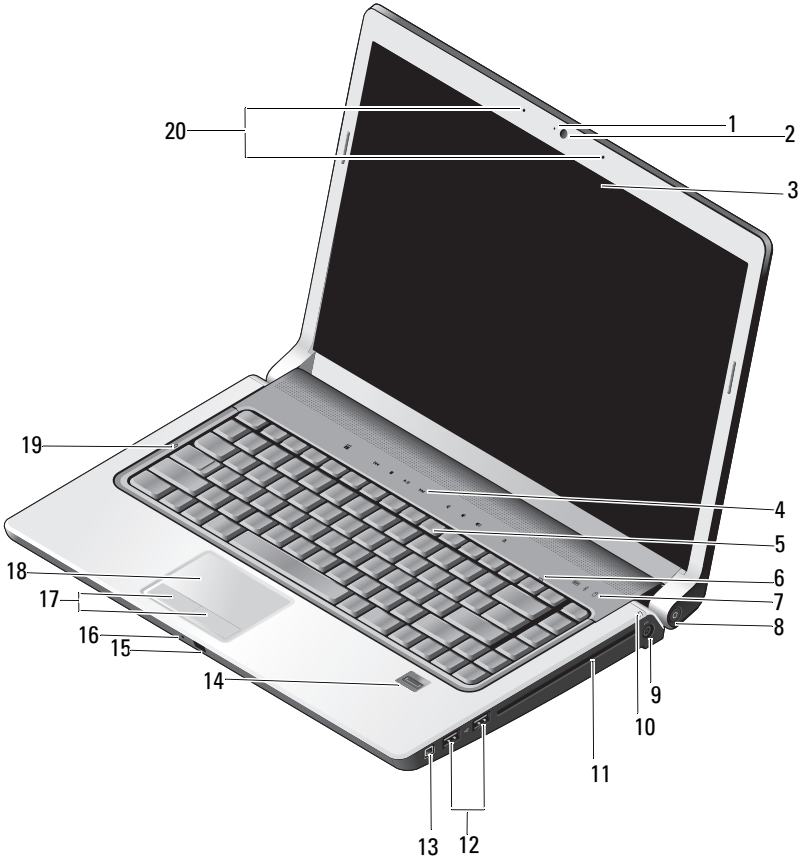
Document/Media/Label	Contents
Service Tag and Express Service Code You can find this at the bottom of your computer.	• Use the Service Tag to identify your computer when you use **support.dell.com** or contact support. • Enter the Express Service Code to direct your call when contacting support.
Model Number You can find this at the bottom of your computer next to the service tag.	Model number of your computer.
Drivers and Utilities Media	• A diagnostic program for your computer • Drivers for your computer • Device documentation • Notebook System Software (NSS) Readme files may be included on your *Drivers and Utilities* media to provide last-minute updates about technical changes to your computer or advanced technical-reference material for technicians or experienced users. **NOTE:** Drivers and documentation updates can be found at **support.dell.com**.
Setup Diagram	How to setup your computer
Service Manual Available at Dell Support Website - **support.dell.com**	• How to remove and replace parts • How to troubleshoot and solve problems
Dell Technology Guide Available in Windows Help and Support (**Start →Help and Support**) and at Dell Support Website - **support.dell.com**	• About your operating system • Using and maintaining peripherals • Understanding technologies such as Internet, E-mail, and so on.

Document/Media/Label	Contents
Microsoft Windows License Label You can find this label in the battery compartment.	Your operating system product key. **NOTE:** This label is available only for systems with Microsoft operating system.
Dell Support Center	• Self Help (Troubleshooting, Security, System Performance, Network/Internet, Backup/Recovery, and Windows Vista) • Alerts (technical support alerts relevant to your computer) • Assistance from Dell (Technical Support with DellConnect™, Customer Service, Training and Tutorials, How-To Help with Dell on Call, and Online Scan with PC CheckUp) • About Your System (System Documentation, Warranty Information, System Information, Upgrades & Accessories) **NOTE:** The Dell Support Center features available in your computer depends on the configuration.
Dell QuickSet Help	Information on network activity, the hotkeys, and other items controlled by Dell QuickSet To view Dell QuickSet Help, right-click the Dell QuickSet icon in the Windows notification area.

1

About Your Computer

Front and Right View



1	camera indicator (optional)	2	camera (optional)
3	display	4	media control buttons (9)
5	keyboard	6	num lock light
7	device status lights	8	power button
9	AC adapter connector	10	battery status light
11	optical drive	12	USB connectors (2)
13	IEEE connector	14	fingerprint reader (optional)
15	consumer IR	16	analog microphone
17	touch pad buttons (2)	18	touch pad
19	caps lock light	20	digital array microphones (optional)

CAMERA INDICATOR — Indicates that the camera is on. Based on configuration selections you made when ordering your computer, your computer may not include a camera.

CAMERA — Built-in camera for video capture, conferencing, and chat. Based on configuration selections you made when ordering your computer, your computer may not include a camera.

DISPLAY — For more information on the display, see *Dell Technology Guide*.

MEDIA CONTROL BUTTONS — Control CD, DVD, Blu-ray, and Media Player playback.

	Launch Dell MediaDirect		Mute the sound
⏮	Play the previous track		Turn the volume down
■	Stop		Turn the volume up
▶/II	Play or pause	⏏	Eject the disc
⏭	Play the next track		

KEYBOARD — Backlit keyboard is an optional feature. If you have purchased the backlit keyboard, you can change the settings through Dell QuickSet.
See Dell Technology Guide for more information on keyboard.

NUM LOCK LIGHT — Turns on when Num Lock is activated.

DEVICE STATUS LIGHTS

The lights located on the palm rest towards the front of the computer indicate the following:

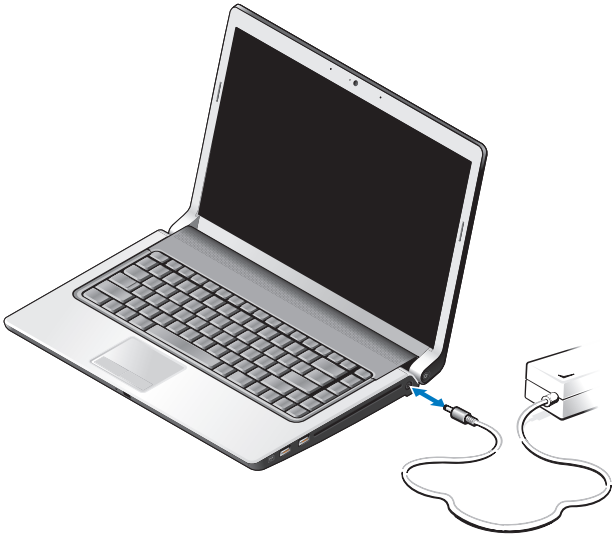
WiFi	WiFi status light – Turns on when wireless networking is enabled. To enable or disable wireless networking, use the wireless switch (see "wireless on/off switch" on page 17).
	Bluetooth® status light – Turns on when a card with Bluetooth wireless technology is enabled. **NOTE:** The card with Bluetooth wireless technology is an optional feature. The light turns on only if you ordered the card with your computer. For more information, see the documentation that came with your card. To turn off only the Bluetooth wireless technology functionality, right-click the icon in the notification area, and then click **Disable Bluetooth Radio**. To turn it back on, right-click the icon in the notification area, and then click **Enable Bluetooth Radio**. To quickly enable or disable all wireless devices, use the wireless switch.
	Hard drive activity light – Turns on when the computer reads or writes data. **NOTICE:** To avoid loss of data, never turn off the computer while the light is flashing.

POWER BUTTON — Press the power button to turn on the computer or exit a power management mode.

NOTICE: If the computer stops responding, press and hold the power button until the computer turns off completely (may take several seconds).

NOTICE: To avoid losing data, turn off your computer by performing a Microsoft® Windows® operating system shutdown rather than by pressing the power button.

AC ADAPTER CONNECTOR — Attaches an AC adapter to the computer. The AC adapter converts AC power to the DC power required by the computer. You can connect the AC adapter with your computer turned on or off.



CAUTION: The AC adapter works with electrical outlets worldwide. However, power connectors and power strips vary among countries. Using an incompatible cable or improperly connecting the cable to the power strip or electrical outlet may cause fire or equipment damage.

NOTICE: When you disconnect the AC adapter cable from the computer, grasp the connector, not the cable itself, and pull firmly, but gently to help prevent damage to the cable.

NOTE: Plug the power cord and the adapter firmly in, and ensure that the green LED is on.

BATTERY STATUS LIGHT — Turns on steadily or blinks to indicate battery charge status.

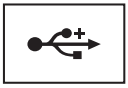
If the computer is connected to an electrical outlet, the battery status light operates as follows:

- Solid white: The battery is charging and has attained sufficient charge or the battery is completely charged
- Off: The battery is adequately charged (or the computer is turned off).
- Solid orange: The battery charge is low.
- Flashing orange: The battery charge is critically low.

OPTICAL DRIVE — For more information about the optical drive, see *Dell Technology Guide*.

NOTE: The optical drive supports standard circular 12.7 cm discs. Irregularly shaped discs or discs smaller than 12.7 cm are not supported.

USB CONNECTORS



Connect USB devices, such as a mouse, keyboard, or printer.

IEEE 1394 CONNECTOR — Connects devices supporting IEEE 1394a high-speed transfer rates, such as some digital video cameras.

FINGERPRINT READER (OPTIONAL) — Helps to keep your Dell™ computer secure. When you slide your finger over the reader, it uses your unique fingerprint to authenticate your user identity. The controlling security management software, DigitalPersona Personal, displays a fingerprint reader icon in the system tray that shows whether the reader is ready for use, and provides convenient access to a few major components and features on its menu. When the reader is ready to scan fingerprints, the reader icon appears normally. Otherwise, a red X displays over the reader icon. The icon also flashes in red color when a fingerprint scan is being processed.

For more information on how to activate and use DigitalPersona Personal, click **Start →Programs →DigitalPersona Personal**. The following sub-items are available in this menu:

- **Fingerprint Enrollment Wizard** - To enroll your fingerprint
- **Fingerprint Logon Manager** - To add, remove or modify properties related to Fingerprint Logons
- **Import and Export Wizard** - To export fingerprint information into a file for the further import on another computer, or for the use as a user-level backup. This functionality allows avoiding the need to re-enter the data when upgrading your computer or while adding a fingerprint reader to a second computer. However, you need to enroll your fingerprints on the computer that you are exporting the DigitalPersona Personal data to.
- **Properties** - To configure DigitalPersona Personal Settings and product behavior. For more information, see **DigitalPersona Online Help →Using DigitalPersona Personal Features →General Settings**.
- **Check for Updates** - To deliver and install software updates and also for updating options. You must have an Internet connection to use this feature. You can either check for updates manually or automatically.

- **Help** - HTML-based Help.

CONSUMER IR — Infrared sensor for using the Dell Travel Remote.

ANALOG MICROPHONE — Integrated single microphone for conferencing and chat.

NOTE: Analog microphone is present only when you have not ordered for the optional camera and digital array microphones.

TOUCH PAD BUTTONS — Use these buttons much like the buttons on a mouse when you use the touch pad to move the cursor on the display.

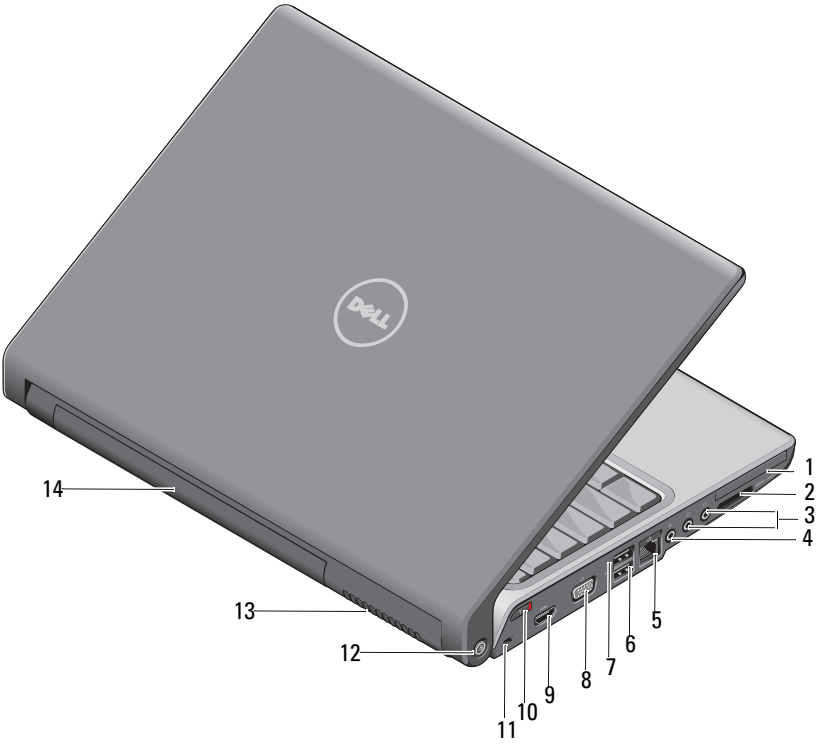
TOUCH PAD — Provides the functionality of a mouse.

CAPS LOCK LIGHT — turns on when Caps Lock is activated.

DIGITAL ARRAY MICROPHONES — Higher quality built-in microphones for conferencing and chat. These microphones filter noise and provide better sound quality

NOTE: Digital array microphones are optional and may not be present in your computer unless you have ordered for the optional camera. Instead, your computer will have an integrated single analog microphone.

Back and Left View



1	ExpressCard slot	2	8-in-1 media card reader
3	headphone connectors (2)	4	microphone connector
5	network connector (RJ-45)	6	USB connector
7	eSATA connector*	8	VGA connector
9	HDMI connector	10	wireless switch
11	security cable slot	12	Wi-Fi catcher network locator
13	air vents	14	battery

* Studio 1535 systems have an additional USB connector instead of an eSATA connector.

EXPRESSCARD SLOT — Supports one ExpressCard. The computer ships with a plastic blank installed in the slot.

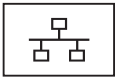
8-IN-1 MEDIA CARD READER — Provides a fast and convenient way to view and share digital photos, music, and videos stored on a media memory card. The computer ships with a plastic *blank* installed in the slot. The 8-in-1 memory card reader reads the following digital media memory cards:

- Secure Digital (SD) memory card
- Secure Digital Input Output (SDIO) card
- MultiMediaCard (MMC)
- Memory Stick
- Memory Stick PRO
- xD-Picture Card
- Hi Speed-SD
- Hi Density-SD

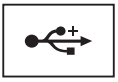
AUDIO CONNECTORS

Attach headphones to the connector
Attach a microphone to the connector

NETWORK CONNECTOR (RJ-45)

	Connects the computer to a network. The two lights next to the connector indicate status and activity for wired network connections. For information on using the network adapter, see the device user's guide supplied with your computer.

USB CONNECTORS

	Connect USB devices, such as a mouse, keyboard, or printer.

eSATA CONNECTOR

Connect eSATA compatible storage devices, such as external hard disk drives or optical drives.

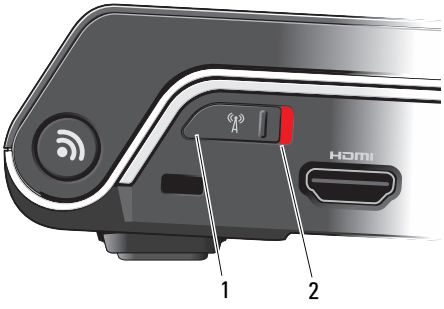
NOTE: The eSATA connector is available only in Studio 1536.

VGA CONNECTOR

Connects video devices, such as a monitor.

HDMI CONNECTOR — HDMI (High-Definition Multimedia Interface) connector carries an uncompressed all digital signal to produce hi-definition video and audio.

WIRELESS ON/OFF SWITCH — Use this switch to rapidly turn off or on any wireless devices such as WLAN cards and internal cards with Bluetooth wireless technology. The wireless switch on your Dell computer uses the Dell Wi-Fi Catcher™ network locator (see "Wi-Fi Catcher™ network locator" on page 18) to scan for wireless networks in your vicinity. The wireless switch is enabled and configured for use when your computer is shipped to you. You can change the settings through Dell QuickSet or the BIOS (system setup program).



1	off	Disables wireless devices
2	on	Enables wireless devices

SECURITY CABLE SLOT — Lets you attach a commercially available antitheft device to the computer.

WI-FI CATCHER™ NETWORK LOCATOR — Press this button for a few seconds to scan specifically for wireless networks in your vicinity.

The Wi-Fi Catcher Network Locator has a light that operates as follows:

- Flashing white: Searching for networks

- Solid white for 10 seconds and then turns off: Network found

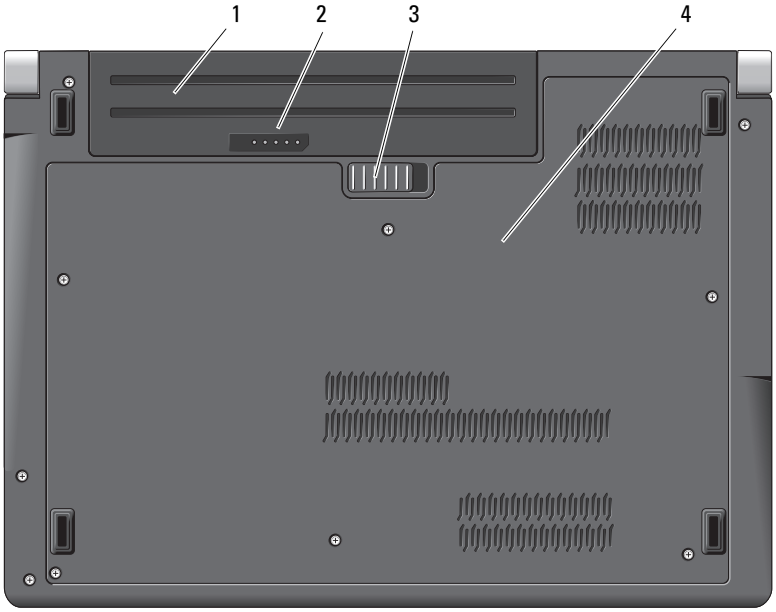
- Off (flashing white turns off after 10 blinks): No signal found

The Wi-Fi Catcher Network Locator is enabled and configured for use when your computer is shipped to you. For more information on the Wi-Fi Catcher Network Locator and to enable the feature through Dell QuickSet, right-click the QuickSet icon in the notification area, and then select Help.

AIR VENTS — The computer uses an internal fan to create airflow through the vents, which prevents the computer from overheating. The fan automatically turns on when the computer gets hot. Fan noise is normal and does not indicate a problem with the fan or the computer.

CAUTION: Do not block, push objects into, or allow dust to accumulate in the air vents. Do not store your computer in a low-airflow environment, such as a closed briefcase, while it is running. Restricting the airflow can damage the computer or cause a fire.

Bottom View



1	battery	2	battery charge/health gauge
3	battery release latch	4	base cover

BATTERY — When a battery is installed, you can use the computer without connecting the computer to an electrical outlet.

NOTE: Connecting the computer to an electrical outlet through the AC adapter will present the brightest picture as well as charge the battery.

BATTERY CHARGE/HEALTH GAUGE — Provides information on the battery charge.

BATTERY RELEASE LATCH — Releases the battery.

BASE COVER — Compartment that contains the processor, hard drive, memory modules, WLAN, WWAN, or Ultra Wideband (UWB) cards.

Removing and Replacing the Battery

CAUTION: Using an incompatible battery may increase the risk of fire or explosion. Replace the battery only with a compatible battery purchased from Dell. The battery is designed to work with your Dell computer. Do not use batteries from other computers with your computer.

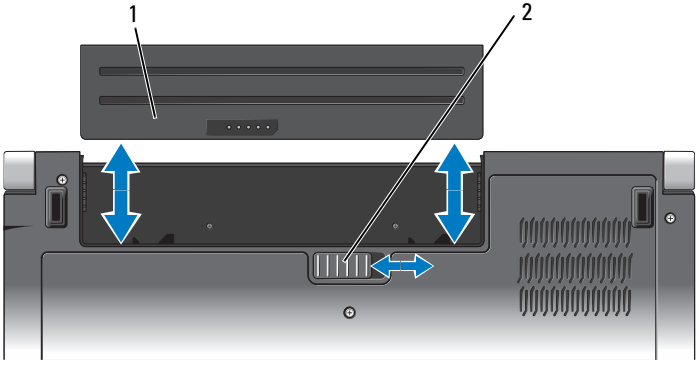
CAUTION: Before performing these procedures, turn off the computer, disconnect the AC adapter from the electrical outlet and the computer, disconnect the modem from the wall connector and the computer, and remove any other external cables from the computer.

NOTICE: You must remove all external cables from the computer to avoid possible connector damage.

NOTICE: If you choose to replace the battery with the computer in Sleep state, you have up to 1 minute to complete the battery replacement before the computer shuts down and loses any unsaved data.

To remove the battery:

1. Ensure that the computer is turned off.
2. Turn the computer over.
3. Slide the battery release latch toward the side of the computer until it is engaged.
4. Slide the battery out of the bay.



1 battery 2 battery release latch

To replace the battery, slide the battery into the bay until it clicks into place.

Removing and Replacing the Base Cover

CAUTION: Before working inside your computer, follow the safety instructions that shipped with your computer.

CAUTION: Before performing this procedures, turn off the computer, disconnect the AC adapter from the electrical outlet and the computer, disconnect the modem from the wall connector and the computer, and remove any other external cables from the computer.

NOTICE: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface (such as a connector on the back of the computer).

To remove the base cover:

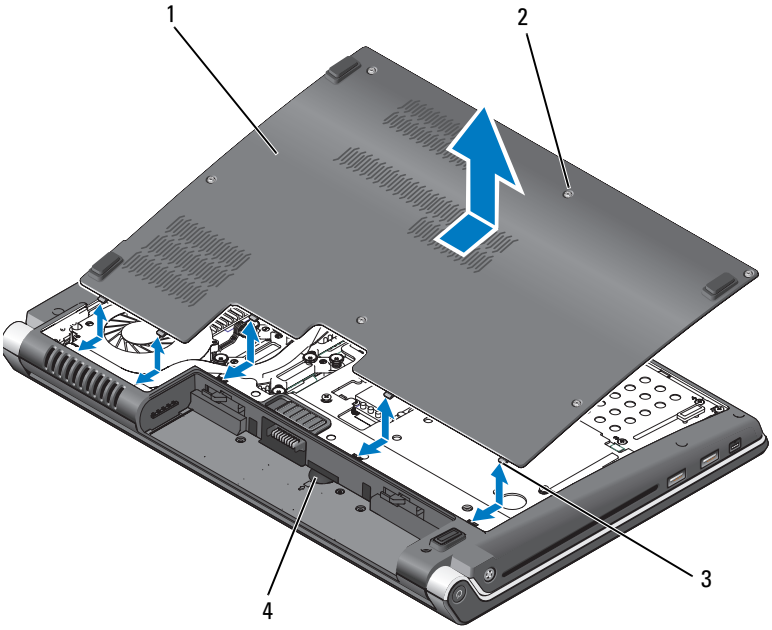
1. Ensure that the computer is turned off.
2. Remove the battery (see "Removing and Replacing the Battery" on page 20).
3. Loosen the six captive screws on the base cover and lift the cover off the computer at an angle as shown in the picture.

CAUTION: Do not touch the processor thermal-cooling assembly. Processor components should be removed only by trained support personnel.

For instructions on removal and replacement of parts, see the *Service Manual* at **support.dell.com**.

To replace the base cover:

1. Align the tabs on the base cover to the bottom of the computer.
2. Replace and tighten the six captive screws on the base cover.
3. Replace the battery (see "Removing and Replacing the Battery" on page 20).



1	base cover	2	captive screws (6)
3	tabs	4	SIM card slot

2

Specifications

NOTE: Offerings may vary by region. For more information regarding the configuration of your computer, click **Start**, click **Help and Support**, and then select the option to view information about your computer.

Processor	
Processor type	Studio 1535: • Intel® Celeron™ Processor • Intel® Pentium™ Processor • Intel® Core™ 2 Processor Studio 1536: • AMD® Sempron™ Processor • AMD® Athlon™ Dual Core Processor • AMD® Turion™ Dual Core Processor • AMD® Turion™ Ultra Dual Core Processor
L1 cache	64 KB (Intel - 32 KB per core) 256 KB (AMD - 128 KB per core)
L2 cache	512 KB (AMD Sempron) 1 MB (Intel Pentium, Intel Celeron, AMD Athlon, AMD Turion) 2 MB or 3 MB (Intel Core 2 Duo, AMD Turion Ultra) 6 MB (Intel Core 2 Duo)
External bus frequency	533 MHz (Intel Celeron, Intel Pentium Dual Core)
HyperTransport (AMD)	667 MHz/800 MHz (Intel Core 2 Duo) 2.66 GHz (AMD Turion Ultra Dual-Core)

System Information	
System chipset	Intel GM/PM 965 (Studio 1535) AMD M780G (Studio 1536)
Data bus width	64 bits
DRAM bus width	dual-channel (2) 64-bit buses
Processor address bus width	32 bits
Flash EPROM	2 MB
Graphics bus	PCI-E X16
PCI bus	32 bits

ExpressCard	
NOTE: The ExpressCard slot is designed only for ExpressCards. It does NOT support PC Cards.	
ExpressCard controller	Intel ICH8M (Studio 1535) AMD M780G (Studio 1536)
ExpressCard connector	one ExpressCard slot (54 mm)
Cards supported	ExpressCard/34 (34 mm) ExpressCard/54 (54 mm) 1.5 V and 3.3 V
ExpressCard connector size	26 pins

8-in-1 Memory Card Reader	
8-in-1 memory card controller	Ricoh R5C833
8-in-1 memory card connector	8-in-1 combo card connector
Cards supported	• Secure Digital (SD) • SDIO • MultiMediaCard (MMC) • Memory Stick • Memory Stick PRO • xD-Picture Card • Hi Speed-SD • Hi Density-SD

Memory	
Memory module connector	two user-accessible SODIMM connectors
Memory module capacities	512 MB, 1 GB, 2 GB
Memory type	800 MHz SODIMM DDR2
Minimum memory	512 MB (single channel)
Maximum memory	4 GB (dual channel 2G x2)

NOTE: In order to take advantage of the dual channel bandwidth capability, both memory slots must be populated and must match in size.

NOTE: The available memory displayed does not reflect the complete maximum memory installed because some memory is reserved for system files.

Ports and Connectors	
Audio	microphone connector, two stereo headphone/speakers connector
IEEE 1394a	4-pin serial connector (optional)
Consumer IR	sensor compatible with Philips RC6 (receive only)
Mini Card	two Type IIIA Mini Card slots, one half-size Mini Card slot
Network adapter	RJ-45 port

Ports and Connectors *(continued)*	
eSATA	one four pin eSATA/USB combo connector (available only on Studio 1536)
USB	four 4-pin USB 2.0-compliant connector (Studio 1535)
	three 4-pin USB 2.0-compliant connector (Studio 1535)
Video	15-hole connector
HDMI	19 pin

Communications	
Modem:	
Type	External V.92 56K USB Modem
Controller	Hardware modem
Interface	Universal Serial Bus (USB)
Network adapter	10/100/1000 Ethernet LAN on system board
Wireless	internal WLAN (half-size Mini-Card), WWAN, Mini-Card with Bluetooth® wireless technology, UWB (optional) Mini-Cards
	WWAN ExpressCard
	Bluetooth® wireless technology

Video	
Discrete:	
Video type	integrated on system board
Video controller	ATI Mobility Radeon HD 3450
Video memory	GDDR2 256MB

Video *(continued)*	
UMA:	
Video type	integrated on system board
Video controller	Mobile Intel GMA X3100, ATI Radeon™ HD 3200 Graphics
Video memory	Intel: Up to 358 MB of shared memory
	AMD: Up to 256 MB of shared memory (32 MB dedicated local frame buffer)
LCD interface	LVDS
TV support	HDMI 1.2

Audio	
Audio type	IDT 92HD73C High Definition Audio codec
Audio controller	5.1 channel High Definition Audio
Stereo conversion	24-bit (analog-to-digital and digital-to-analog)
Interfaces:	
Internal	Intel High Definition Audio
External	microphone-in connector, two stereo headphones/speakers connector
Speaker	two 4-ohm speakers
Internal speaker amplifier	2 Watt per channel into 4 ohms
Volume controls	program menus, media control buttons

Display	
Type (TrueLife)	15.4-inch CCFL WXGA Anti-Glare 15.4-inch CCFL WXGA+ with TrueLife 15.4-inch CCFL WUXGA with TrueLife 15.4-inch WXGA+WLED with TrueLife
Dimensions:	
Height	207 mm (8.14 in)
Width	331.2 mm (13.03 in)
Diagonal	391.2 mm (15.4 in)
Maximum resolutions:	
WXGA AG	1280 x 800 at 262 K colors
WXGA+ with TrueLife	1440 x 900 at 262 K colors
WUXGA+with TrueLife	1600 x 1200 at 262 K colors
Refresh rate	60 Hz
Operating angle	0° (closed) to 140°
Viewing angles:	
Horizontal	±40° (WXGA AG) ±55° (WXGA+ with TrueLife) ±55° (WUXGA+ with TrueLife)
Vertical	+15°/–30° (WXGA AG) ±45° (WXGA+ with TrueLife) ±45° (WUXGA+ with TrueLife)
Pixel pitch:	
WXGA AG	0.258 mm
WXGA+ with TrueLife	0.2304 mm
WUXGA+with TrueLife	0.1725 mm
Controls	brightness can be controlled through keyboard shortcuts (see *Dell Technology Guide* for more information.)

Media	
Drive	DVD+/-RW
Interface	Roxio Creator 10 DE and Roxio Creator 10 Premier - Ultimate Dell MediaDirect™ 4.0

Keyboard	
Number of keys	86 (U.S. and Canada); 102 (Europe); 105 (Japan); 104 (Brazil)
Layout	QWERTY/AZERTY/Kanji

NOTE: Backlit keyboard is optional

Camera (optional)	
Pixel	2.0 mega pixel
Video Resolution	320x240 ~1600x1200 (640x480 at 30fps)
Diagonal Viewing Angle	66°

Touch Pad	
X/Y position resolution (graphics table mode)	240 cpi
Size:	
Width	73.09-mm (2.87-in) sensor-active area
Height	40.09-mm (1.57-in) rectangle

Battery	
Type	9-cell "smart" lithium ion 6-cell "smart" lithium ion
	4-cell "smart" lithium ion
Dimensions:	
Depth	48.3 mm (1.9 in) (4/6/9 cell)
Height	20.4 mm (0.8 in) (4/6 cell)
	37.8 mm (1.5 in) (9 cell)
Width	206.6 mm (8.13 in) (4/6 cell)
	284.9 mm (11.2 in) (9 cell)
Weight	0.24 kg (0.54 lb) (4 cell)
	0.34 kg (0.75 lb) (6 cell) 0.5 kg (1.1 lb) (9 cell)
Voltage	11.1 VDC (6/9 cell)
	14.8 VDC (4 cell)
Charge time (approximate):	
Computer off	4 hours
Operating time	Battery operating time varies depending on operating conditions and can be significantly reduced under certain power-intensive conditions.
	See *Dell Technology Guide* for more information on battery life.
Life span (approximate)	300 discharge/charge cycles
Temperature range:	
Operating	0° to 35°C (32° to 95°F)
Storage	–40° to 65°C (–40° to 149°F)
Coin-cell battery	CR-2032

AC Adapter	
Input voltage	100–240 VAC
Input current (maximum)	1.5 A
Input frequency	50–60 Hz
Output current	
65 W	3.34 A (continuous) 4.34 A (peak for 4-second pulse)
90 W	4.62 A (continuous) 5.62 A (peak for 4-second pulse)
Output power	65 W or 90 W
Rated output voltage	19.5 VDC
Dimensions:	
65 W	
Height	28.2 mm (1.11 in)
Width	57.9 mm (2.28 in)
Length	137.2 mm (5.4 in)
90 W	
Height	34.2 mm (1.35 in)
Width	60.9 mm (2.39 in)
Length	153.42 mm (6.04 in)
Weight (without cables)	
65 W	0.29 kg (0.64 lb)
90 W	0.345 kg (0.76 lb)
Temperature range:	
Operating	0° to 35°C (32° to 95°F)
Storage	–40° to 65°C (–40° to 149°F)
Connector types:	
DC connector	3 pin, 7.4 mm plug
AC connector	2 pin - C7 (Japan only) 3 pin - C5

Physical	
Height	25.3 mm to 38.5 mm (1.0 in to 1.51 in)
Width	355 mm (13.98 in)
Depth	261.9 mm (10.31 in)
Weight (with 4-cell battery):	
Configurable to less than	2.68 kg (5.91 lb)

Environmental	
Temperature range:	
Operating	0° to 35°C (32° to 95°F)
Storage	–40° to 65°C (–40° to 149°F)
Relative humidity (maximum):	
Operating	10% to 90% (noncondensing)
Storage	5% to 95% (noncondensing)
Maximum vibration (using a random vibration spectrum that simulates user environment):	
Operating	0.66 GRMS
Storage	1.3 GRMS
Maximum shock (Measured with hard drive in operating but not accessing data status and a 2-ms half-sine pulse for operating. Also measured with hard drive in head-parked position and a 2-ms halfsine pulse for storage):	
Operating	110 G
Storage	160 G
Altitude (maximum):	
Operating	–15.2 to 3048 m (–50 to 10,000 ft)
Storage	–15.2 to 10,668 m (–50 to 35,000 ft)
Airborne containment level	G2 or lower as defined by ISA-S71.04-1985

3

Troubleshooting

Dell Technical Update Service

The Dell Technical Update service provides proactive e-mail notification of software and hardware updates for your computer. This service is free and can be customized for content, format, and frequency of notifications.

To enroll for the Dell Technical Update service, go to **support.dell.com/technicalupdate**.

Pre-Boot Self Assessment (PSA) Diagnostics and Dell 32 Bit Diagnostics

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

Diagnostics Available

Depending on which Dell computer you have purchased there may be additional extended Dell 32 Bit Diagnostics available on the hard drive in a Utility Partition that provides additional troubleshooting.

When to Use PSA Diagnostics and Dell 32 Bit Diagnostics

If you experience a problem with your computer, perform the checks in "Lockups and Software Problems" on page 44 and run PSA Diagnostics and Dell 32 Bit Diagnostics before you contact Dell for technical assistance.

It is recommended that you print these procedures before you begin.

NOTE: PSA and 32 Bit Dell Diagnostics operate only on Dell computers.

Enter system setup, review your computer's configuration information, and ensure that the device you want to test displays in system setup and is active (for more information on system setup, see *Dell Technology Guide*).

Start the Dell 32 Bit Diagnostics from your hard drive or from your *Drivers and Utilities* media.

Starting PSA Diagnostics From Your Computer

NOTE: If your computer does not display a screen image, contact Dell (see "Contacting Dell" on page 58).

NOTE: Troubleshooting using Dell 32 Bit Diagnostics through the Utility Partition, referenced in this section, may or may not be available in your computer.

1. Ensure that the computer is connected to an electrical outlet.
2. Turn on (or restart) your computer.
3. Start PSA Diagnostics in one of the following two ways:
   a. When the DELL™ logo appears, press <F12> immediately. Select Diagnostics from the boot menu, and then press <Enter>.

      NOTE: If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft® Windows® desktop, then shut down your computer and try again.

      NOTE: Before attempting option B, the computer must be turned off.

   b. Press and hold the <Fn> key while powering the computer on.

   Follow the prompts on the screen, select **Diagnostics** to start the PSA suite of tests. The computer then runs the Pre-boot Self Assessment, a series of initial tests of your system board, keyboard, hard drive, and display.

   - During the assessment, provide inputs when prompted.
   - If a failure is detected, the computer stops and beeps. To stop the assessment and restart the computer, press <n>; to continue to the next test, press <y>; to retest the component that failed, press <r>.
   - If failures are detected during the Pre-boot System Assessment, write down the error code(s) and contact Dell.

   If the Pre-boot System Assessment completes successfully and your system has 32 Bit Diagnostics, you receive the message `Booting Dell Diagnostics Utility Partition. Press any key to continue`.
4. Press any key to start the Dell 32 Bit Diagnostics.

Starting the Dell 32 Bit Diagnostics From the *Drivers and Utilities* Media

NOTE: Depending on which Dell computer you have purchased there may not be an additional extended Dell 32 Bit Diagnostics available on the *Drivers and Utilities* media referenced in this section.

1. Insert your *Drivers and Utilities* media.
2. Shut down and restart the computer.
3. When the DELL logo appears, press <F12> immediately.

   NOTICE: Keyboard failure may result when a key on the keyboard is held down for extended periods of time. To avoid possible keyboard failure, press and release <F12> in even intervals until the boot device menu appears.
4. At the boot device menu, use the up- and down-arrow keys to highlight **CD/DVD/CD-RW**, and then press <Enter>.

   NOTE: The Quickboot feature changes the boot sequence for the current boot only. Upon restart, the computer boots according to the boot sequence specified in system setup.
5. Select the **Boot from CD-ROM** option from the menu that appears, and then press <Enter>.
6. Type `1` to start the **Drivers and Utilities** menu, and then press <Enter>.
7. Select **Run the 32 Bit Dell Diagnostics** from the numbered list. If multiple versions are listed, select the version appropriate for your computer.
8. At the Dell Diagnostics **Main Menu**, select the test you want to run.

   NOTE: Write down the error codes and problem descriptions exactly as they appear and follow the instructions on the screen.
9. After all tests have completed, close the test window to return to the Dell Diagnostics **Main Menu**.
10. Remove your *Drivers and Utilities* media and close the **Main Menu** window to exit Diagnostics. Restart the computer.

Dell Diagnostics Main Menu

After the Dell Diagnostics loads and the **Main Menu** screen appears, click the button for the option you want.

NOTE: It is recommended that you select `Test System` to run a complete test on your computer.

Option	Function
`Test Memory`	Run the stand-alone memory test
`Test System`	Run System Diagnostics
`Exit`	Exit Diagnostics

After you have selected the `Test System` option from the main menu, the following menu appears.

NOTE: It is recommended that you select `Extended Test` from the menu below to run a more thorough check of the devices in the computer.

Option	Function
`Express Test`	Performs a quick test of system devices. The test typically takes 10 to 20 minutes and requires no interaction on your part. Run Express Test first to increase the possibility of tracing the problem quickly.
`Extended Test`	Performs a thorough check of system devices. The test typically takes an hour or more and periodically requires your input to answer specific questions.
`Custom Test`	Tests a specific device in the system and can be used to customize the tests you want to run.
`Symptom Tree`	Lists a number of common symptoms and allows you to select a test based on the symptom of the problem you are having.

For any problem encountered during a test, a message appears with an error code and a description of the problem. Write down the error code and problem description exactly as it appears and follow the instructions on the screen. If you cannot resolve the problem, contact Dell (see "Contacting Dell" on page 58).

NOTE: The Service Tag for your computer is located at the top of each test screen. When contacting Dell support, have your Service Tag ready.

The following tabs provide additional information for tests run from the **Custom Test** or **Symptom Tree** option:

Tab	Function
`Results`	Displays the results of the test and any error conditions encountered.
`Errors`	Displays error conditions encountered, error codes, and the problem description.
`Help`	Describes the test and any requirements for running the test.
`Configuration`	Displays your hardware configuration for the selected device. The Dell Diagnostics obtains configuration information for all devices from system setup, memory, and various internal tests, and it displays the information in the device list in the left pane of the screen. The device list may not display the names of all the components installed on your computer or all devices attached to your computer.
`Parameters`	Allows you to customize the test by changing the test settings.

Dell Support Center

The Dell Support Center helps you find the service, support and system-specific information you need. For more information about Dell Support Center and available support tools, click the **Services** tab at **support.dell.com**.

Click on the icon in the taskbar to run the application. The home page provides links to access:

- Self Help (Troubleshooting, Security, System Performance, Network/Internet, Backup/Recovery, and Windows Vista)
- Alerts (technical support alerts relevant to your computer)
- Assistance from Dell (Technical Support with DellConnect™, Customer Service, Training and Tutorials, How-To Help with Dell on Call, and Online Scan with PCCheckUp)
- About Your System (System Documentation, Warranty Information, System Information, Upgrades & Accessories)

The top of the Dell Support Center home page displays your system's model number along with its service tag and express service code.

For more information on Dell Support Center, see the Dell Technology Guide. It is available in Windows Help and Support (**Start →Help and Support**) and at Dell Support Website.

Drive Problems

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

Fill out the "Diagnostics Checklist" on page 57 as you complete these checks.

ENSURE THAT MICROSOFT® WINDOWS® RECOGNIZES THE DRIVE —

- Click **Start** →**Computer**.

If the drive is not listed, perform a full scan with your antivirus software to check for and remove viruses. Viruses can sometimes prevent Windows from recognizing the drive.

TEST THE DRIVE —

- Insert another CD, DVD, or BD to eliminate the possibility that the original media is defective.
- Insert a bootable media and restart the computer.

CLEAN THE DRIVE OR DISK — See *Dell Technology Guide*.

CHECK THE CABLE CONNECTIONS

CHECK FOR HARDWARE INCOMPATIBILITIES — See *Dell Technology Guide* for instructions on troubleshooting software and hardware problems.

RUN THE DELL DIAGNOSTICS — See "Pre-Boot Self Assessment (PSA) Diagnostics and Dell 32 Bit Diagnostics" on page 33.

Hard drive problems

ALLOW THE COMPUTER TO COOL BEFORE TURNING IT ON — A hot hard drive may prevent the operating system from starting. Try allowing the computer to return to room temperature before turning it on.

RUN CHECK DISK —

1. Click **Start** →**Computer**.
2. Right-click **Local Disk (C:)**.

3 Click **Properties→Tools→Check Now**.

NOTE: The **User Account Control** window may appear. If you are an administrator on the computer, click **Continue**; otherwise, contact your administrator to continue the desired action.

4 Click to check **Scan for and attempt recovery of bad sectors**, and then click **Start**.

Error Messages

Fill out the "Diagnostics Checklist" on page 57 as you complete these checks.

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

If the message is not listed, see the documentation for the operating system or the program that was running when the message appeared.

AUXILIARY DEVICE FAILURE — The touch pad or external mouse may be faulty. For an external mouse, check the cable connection. If the problem persists, contact Dell (see "Contacting Dell" on page 58).

BAD COMMAND OR FILE NAME — Ensure that you have spelled the command correctly, put spaces in the proper place, and used the correct pathname.

CACHE DISABLED DUE TO FAILURE — The primary cache internal to the microprocessor has failed. Contact Dell (see "Contacting Dell" on page 58).

CD DRIVE CONTROLLER FAILURE — The CD drive does not respond to commands from the computer (see "Drive Problems" on page 38).

DATA ERROR — The hard drive cannot read the data (see "Drive Problems" on page 38).

DECREASING AVAILABLE MEMORY — One or more memory modules may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them (see *Service Manual* for instructions to replace memory modules).

DISK C: FAILED INITIALIZATION — The hard drive failed initialization. Run the hard drive tests in the Dell Diagnostics (see "Pre-Boot Self Assessment (PSA) Diagnostics and Dell 32 Bit Diagnostics" on page 33).

DRIVE NOT READY — The operation requires a hard drive in the bay before it can continue. Install a hard drive in the hard drive bay.

EXTENDED MEMORY SIZE HAS CHANGED — The amount of memory recorded in NVRAM does not match the memory installed in the computer. Restart the computer. If the error appears again, contact Dell.

THE FILE BEING COPIED IS TOO LARGE FOR THE DESTINATION DRIVE — The file that you are trying to copy is too large to fit on the disk, or the disk is full. Try copying the file to a different disk or use a larger capacity disk.

A FILENAME CANNOT CONTAIN ANY OF THE FOLLOWING CHARACTERS: \ / : * ? " < > | — Do not use these characters in filenames.

GATE A20 FAILURE — A memory module may be loose. Reinstall the memory modules and, if necessary, replace them.

GENERAL FAILURE — The operating system is unable to carry out the command. The message is usually followed by specific information—for example, `Printer out of paper`. Take the appropriate action.

HARD-DISK DRIVE CONFIGURATION ERROR — The computer cannot identify the drive type. Shut down the computer, remove the hard drive, and boot the computer from a CD. Then, shut down the computer, reinstall the hard drive, and restart the computer. Run the Hard Disk Drive tests in the Dell Diagnostics (see "Pre-Boot Self Assessment (PSA) Diagnostics and Dell 32 Bit Diagnostics" on page 33).

HARD-DISK DRIVE CONTROLLER FAILURE 0 — The hard drive does not respond to commands from the computer. Shut down the computer, remove the hard drive, and boot the computer from a CD. Then, shut down the computer, reinstall the hard drive, and restart the computer. If the problem persists, try another drive. Run the Hard Disk Drive tests in the Dell Diagnostics (see "Pre-Boot Self Assessment (PSA) Diagnostics and Dell 32 Bit Diagnostics" on page 33).

HARD-DISK DRIVE FAILURE — The hard drive does not respond to commands from the computer. Shut down the computer, remove the hard drive, and boot the computer from a CD. Then, shut down the computer, reinstall the hard drive, and restart the computer. If the problem persists, try another drive. Run the Hard Disk Drive tests in the Dell Diagnostics (see "Pre-Boot Self Assessment (PSA) Diagnostics and Dell 32 Bit Diagnostics" on page 33).

HARD-DISK DRIVE READ FAILURE — The hard drive may be defective. Shut down the computer, remove the hard drive, and boot the computer from a CD. Then, shut down the computer, reinstall the hard drive, and restart the computer. If the problem persists, try another drive. Run the Hard Disk Drive tests in the Dell Diagnostics (see "Pre-Boot Self Assessment (PSA) Diagnostics and Dell 32 Bit Diagnostics" on page 33).

INSERT BOOTABLE MEDIA — The operating system is trying to boot to nonbootable media, such as a CD. Insert bootable media.

INVALID CONFIGURATION INFORMATION-PLEASE RUN SYSTEM SETUP PROGRAM — The system configuration information does not match the hardware configuration. The message is most likely to occur after a memory module is installed. Correct the appropriate options in the system setup program.

KEYBOARD CLOCK LINE FAILURE — For external keyboards, check the cable connection. Run the Keyboard Controller test in the Dell Diagnostics (see "Pre-Boot Self Assessment (PSA) Diagnostics and Dell 32 Bit Diagnostics" on page 33).

KEYBOARD CONTROLLER FAILURE — For external keyboards, check the cable connection. Restart the computer, and avoid touching the keyboard or the mouse during the boot routine. Run the Keyboard Controller test in the Dell Diagnostics (see "Pre-Boot Self Assessment (PSA) Diagnostics and Dell 32 Bit Diagnostics" on page 33).

KEYBOARD DATA LINE FAILURE — For external keyboards, check the cable connection. Run the Keyboard Controller test in the Dell Diagnostics (see "Pre-Boot Self Assessment (PSA) Diagnostics and Dell 32 Bit Diagnostics" on page 33).

KEYBOARD STUCK KEY FAILURE — For external keyboards or keypads, check the cable connection. Restart the computer, and avoid touching the keyboard or keys during the boot routine. Run the Stuck Key test in the Dell Diagnostics (see "Pre-Boot Self Assessment (PSA) Diagnostics and Dell 32 Bit Diagnostics" on page 33).

LICENSED CONTENT IS NOT ACCESSIBLE IN MEDIADIRECT — Dell MediaDirect™ cannot verify the Digital Rights Management (DRM) restrictions on the file, so the file cannot be played.

MEMORY ADDRESS LINE FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE —

A memory module may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them.

MEMORY ALLOCATION ERROR — The software you are attempting to run is conflicting with the operating system, another program, or a utility. Shut down the computer, wait 30 seconds, and then restart it. Try to run the program again. If the error message still appears, see the software documentation.

MEMORY DATA LINE FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE —

A memory module may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them.

MEMORY DOUBLE WORD LOGIC FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE — A memory module may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them.

MEMORY ODD/EVEN LOGIC FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE — A memory module may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them.

MEMORY WRITE/READ FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE —

A memory module may be faulty or improperly seated. Reinstall the memory modules and, if necessary, replace them.

NO BOOT DEVICE AVAILABLE — The computer cannot find the hard drive. If the hard drive is your boot device, ensure that the drive is installed, properly seated, and partitioned as a boot device.

NO BOOT SECTOR ON HARD DRIVE — The operating system may be corrupted. Contact Dell (see "Contacting Dell" on page 58).

NO TIMER TICK INTERRUPT — A chip on the system board may be malfunctioning. Run the System Set tests in the Dell Diagnostics (see "Pre-Boot Self Assessment (PSA) Diagnostics and Dell 32 Bit Diagnostics" on page 33).

NOT ENOUGH MEMORY OR RESOURCES. EXIT SOME PROGRAMS AND TRY AGAIN —

You have too many programs open. Close all windows and open the program that you want to use.

OPERATING SYSTEM NOT FOUND — Reinstall the hard drive. If the problem persists, contact Dell (see "Contacting Dell" on page 58).

OPTIONAL ROM BAD CHECKSUM — The optional ROM has failed. Contact Dell (see "Contacting Dell" on page 58).

A REQUIRED .DLL FILE WAS NOT FOUND — The program that you are trying to open is missing an essential file. Remove and then reinstall the program.

1. Click **Start** → **Control Panel**.
2. Under **Programs**, click **Uninstall a Program**.
3. Select the program you want to remove.
4. Click **Uninstall** and follow the prompts on the screen.
5. See the program documentation for installation instructions.

SECTOR NOT FOUND — The operating system cannot locate a sector on the hard drive. You may have a defective sector or corrupted FAT on the hard drive. Run the Windows error-checking utility to check the file structure on the hard drive. See Windows Help and Support for instructions (click **Start** → **Help and Support**). If a large number of sectors are defective, back up the data (if possible), and then reformat the hard drive.

SEEK ERROR — The operating system cannot find a specific track on the hard drive.

SHUTDOWN FAILURE — A chip on the system board may be malfunctioning. Run the System Set tests in the Dell Diagnostics (see "Pre-Boot Self Assessment (PSA) Diagnostics and Dell 32 Bit Diagnostics" on page 33).

TIME-OF-DAY CLOCK LOST POWER — System configuration settings are corrupted. Connect your computer to an electrical outlet to charge the battery. If the problem persists, try to restore the data by entering the system setup program, then immediately exit the program. If the message reappears, contact Dell (see "Contacting Dell" on page 58).

TIME-OF-DAY CLOCK STOPPED — The reserve battery that supports the system configuration settings may require recharging. Connect your computer to an electrical outlet to charge the battery. If the problem persists, contact Dell (see "Contacting Dell" on page 58).

TIME-OF-DAY NOT SET-PLEASE RUN THE SYSTEM SETUP PROGRAM — The time or date stored in the system setup program does not match the system clock. Correct the settings for the **Date** and **Time** options.

TIMER CHIP COUNTER 2 FAILED — A chip on the system board may be malfunctioning. Run the System Set tests in the Dell Diagnostics (see "Pre-Boot Self Assessment (PSA) Diagnostics and Dell 32 Bit Diagnostics" on page 33).

UNEXPECTED INTERRUPT IN PROTECTED MODE — The keyboard controller may be malfunctioning, or a memory module may be loose. Run the System Memory tests and the Keyboard Controller test in the Dell Diagnostics (see "Pre-Boot Self Assessment (PSA) Diagnostics and Dell 32 Bit Diagnostics" on page 33).

X:\ IS NOT ACCESSIBLE. THE DEVICE IS NOT READY — Insert a disk into the drive and try again.

WARNING: BATTERY IS CRITICALLY LOW — The battery is running out of charge. Replace the battery, or connect the computer to an electrical outlet; otherwise, activate hibernate mode or shut down the computer.

Lockups and Software Problems

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

The computer does not start

CHECK THE AC ADAPTER — Ensure that the AC adapter is firmly connected to the computer and to the electrical outlet.

The computer stops responding

NOTICE: You might lose data if you are unable to perform an operating system shutdown.

TURN THE COMPUTER OFF — If you are unable to get a response by pressing a key on your keyboard or moving your mouse, press and hold the power button for at least 8 to 10 seconds until the computer turns off, then restart your computer.

A program stops responding or crashes repeatedly

END THE PROGRAM —

1. Press <Crtl><Shift><Esc> simultaneously.
2. Click the **Applications** tab and select the program that is no longer responding.
3. Click **End Task**.

NOTE: The chkdsk program may run when you restart the computer. Follow the instructions on the screen.

CHECK THE SOFTWARE DOCUMENTATION — If necessary, uninstall and then reinstall the program. Software usually includes installation instructions in its documentation or on a DVD.

A program is designed for an earlier Microsoft® Windows® operating system

RUN THE PROGRAM COMPATIBILITY WIZARD — Program compatibility is a mode in Windows that lets you run programs written for earlier versions of Windows. For more information, search for the keyword *program compatibility wizard* in Windows Help and Support.

A solid blue screen appears

TURN THE COMPUTER OFF — If you are unable to get a response by pressing a key on your keyboard or moving your mouse, press and hold the power button for at least 8 to 10 seconds until the computer turns off, then restart your computer.

Memory Problems

Fill out the "Diagnostics Checklist" on page 57 as you complete these checks.

⚠ **CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.**

IF YOU RECEIVE AN INSUFFICIENT MEMORY MESSAGE —

- Save and close any open files and exit any open programs you are not using to see if that resolves the problem.
- See the software documentation for minimum memory requirements. If necessary, install additional memory.
- Reseat the memory modules to ensure that your computer is successfully communicating with the memory.
- Run the Dell Diagnostics (see "Pre-Boot Self Assessment (PSA) Diagnostics and Dell 32 Bit Diagnostics" on page 33).

IF YOU EXPERIENCE OTHER MEMORY PROBLEMS —

- Reseat the memory modules to ensure that your computer is successfully communicating with the memory.
- Ensure that you are following the memory installation guidelines.
- Run the Dell Diagnostics (see "Pre-Boot Self Assessment (PSA) Diagnostics and Dell 32 Bit Diagnostics" on page 33).

Power Problems

Fill out the "Diagnostics Checklist" on page 57 as you complete these checks.

CAUTION: Before you begin any of the procedures in this section, follow the safety instructions that shipped with your computer.

CHECK THE POWER LIGHT — When the power light is lit or blinking, the computer has power. If the power light is blinking, the computer is in Sleep state—press the power button to exit Sleep state. If the light is off, press the power button to turn on the computer.

CHARGE THE BATTERY — The battery charge may be depleted.

1. Reinstall the battery.
2. Use the AC adapter to connect the computer to an electrical outlet.
3. Turn on the computer.

NOTE: Battery operating time (the time the battery can hold a charge) decreases over time. Depending on how often the battery is used and the conditions under which it is used, you may need to purchase a new battery during the life of your computer.

CHECK THE BATTERY STATUS LIGHT — If the battery status light flashes amber or is a steady amber, the battery charge is low or depleted. Connect the computer to an electrical outlet.

If the battery status light flashes blue and amber, the battery is too hot to charge. Shut down the computer, disconnect the computer from the electrical outlet, and then let the battery and computer cool to room temperature.

If the battery status light rapidly flashes amber, the battery may be defective. Contact Dell (see "Contacting Dell" on page 58).

CHECK THE BATTERY TEMPERATURE — If the battery temperature is below 0°C (32°F), the computer will not start.

TEST THE ELECTRICAL OUTLET — Ensure that the electrical outlet is working by testing it with another device, such as a lamp.

CHECK THE AC ADAPTER — Check the AC adapter cable connections. If the AC adapter has a light, ensure that the light is on.

CONNECT THE COMPUTER DIRECTLY TO AN ELECTRICAL OUTLET — Bypass power protection devices, power strips, and extension cables to verify that the computer turns on.

ELIMINATE POSSIBLE INTERFERENCE — Turn off nearby fans, fluorescent lights, halogen lamps, or other appliances.

ADJUST THE POWER PROPERTIES — See Dell Technology Guide for power management settings.

RESEAT THE MEMORY MODULES — If the computer power light turns on, but the display remains blank, reinstall the memory modules.

Troubleshooting Software and Hardware Problems in the Windows Vista® Operating System

If a device is either not detected during the operating system setup or is detected but incorrectly configured, use Windows Vista Help and Support to resolve the incompatibility. Windows Vista is a new operating system, so many older devices may not have drivers or applications for Windows Vista. Check with your hardware manufacturer for further information on their device.

To start the Hardware Troubleshooter:

1. Click **Start** →**Help and Support**.
2. In the **Find an answer** section, click **Troubleshooting**.

   OR

   Type `hardware troubleshooter` in the search field, then press <Enter>.
3. In the search results, select the option that best describes the problem and follow the troubleshooting steps.

NOTE: If you do not find the answer in the items categorized in Troubleshooting, you can get Online Help by typing in your question in the Search Help field at the top of the window.

Restoring Your Operating System

You can restore your operating system in the following ways:

- Windows Vista® has the Backup and Restore Center that can create backups of important files on your computer, or backup the entire computer. You may then restore your operating system or files if needed.
- Microsoft Windows Vista System Restore returns your computer to an earlier operating state without affecting data files. Use System Restore as the first solution for restoring your operating system and preserving data files. For instructions, see "Using Windows Vista System Restore" on page 48.
- If you received an *Operating System* media with your computer, you can use it to restore your operating system. However, using the *Operating System* media also deletes all data on the hard drive. Use the media *only* if System Restore did not resolve your operating system problem.

Using Windows Vista System Restore

The Windows Vista operating system provides System Restore to allow you to return your computer to an earlier operating state (without affecting data files) if changes to the hardware, software, or other system settings have left the computer in an undesirable operating state. See the Windows Help and Support Center for information on using System Restore.

To access the Windows Help and Support Center, click **Start** →**Help and Support**.

NOTICE: Make regular backups of your data files. System Restore does not monitor your data files or recover them.

NOTE: The procedures in this document were written for the Windows default view, so they may not apply if you set your Dell computer to the Windows Classic view.

Creating a Restore Point

You can automatically and manually create a restore point from the Windows Vista Back Up and Restore Center. There are two ways to get to the Windows Vista Backup and Restore Center:

1. Click **Start** →**Welcome Center**. In the **Get started with Windows** section, click **Show all 14 items...**→**Back Up and Restore Center**.
2. Click **Start** →**All Programs** →**Maintenance** →**Back Up and Restore Center**. Under **Tasks**, click **Create a restore point or change settings**.

For more information,

1. Click **Start** →**Help and Support**.
2. Type `System Restore` in the search field and press <Enter>.

Restoring the Computer to an Earlier Operating State

If problems occur after you install a device driver, use Device Driver Rollback to resolve the problem. If that is unsuccessful, then use System Restore.

NOTICE: Before you restore the computer to an earlier operating state, save and close all open files and exit any open programs. Do not alter, open, or delete any files or programs until the system restoration is complete.

1. Click **Start** →**Control Panel**→**System and Maintenance**→**Back Up and Restore Center**.
2. In the Tasks list, click **Repair Windows using System Restore**.
3. Click **Continue** in the **User Account Control** (UAC) dialog box asking for permission to run the application.
4. Click **Next** in the **System Restore** window to view the most recent restore points in chronological order.
5. Select the **Show restore points older than 5 days** checkbox to view the complete list of restore points.
6. Select a restore point. Try to restore from the most recent restore point. If this fails to correct the problem, try the next oldest restore point until the issue is resolved. Any software installed after the selected restore point will need to be reinstalled.
7. Click **Next**→**Finish**.
8. When prompted, click **Yes**.
9. After System Restore finishes collecting data, the computer restarts.
10. After the computer restarts, click **OK**.

To change the restore point, you can either repeat the steps using a different restore point, or you can undo the restoration.

If you encounter any error messages during the restore process, follow the prompts on the screen to correct the error.

Undoing the Last System Restore

NOTICE: Before you undo the last system restore, save and close all open files and exit any open programs. Do not alter, open, or delete any files or programs until the system restoration is complete.

1. Click **Start** → **Help and Support**.
2. Type `System Restore` in the search field and press <Enter>.
3. Click **Undo my last restoration**, and then click **Next**.

Restoring the Computer to the Default Factory Configuration

The Dell Factory Image Restore option allows you to restore your hard drive back to its original factory configuration as when you first ordered it from Dell. This option appears on Dell computers that were originally pre-installed with Windows Vista® and does not include computers purchased through the Express Upgrade promotion or computers that were upgraded to Windows Vista from another version of Windows.

NOTICE: When you restore the computer to the default factory configuration, all data on the C drive is deleted. Before performing this procedure, back up personal files. If you do not back up personal files, the data is lost.

1. Restart the computer. To do this, click **Start** → → **Restart**.
2. As the computer restarts, press <F8> until the **Advanced Boot Options** menu appears on the screen.

   NOTE: You must press the <F8> key before the Windows logo appears on the screen. If you press <F8> after the Windows logo appears on the screen, the **Advanced Boot Options** menu will not appear on the screen. If you do not see the **Advanced Boot Options** menu, restart the computer, and then repeat this step until you see the menu on the screen.
3. Press <Down Arrow> to select **Repair Your Computer** on the **Advanced Boot Options** menu, and then press <Enter>.
4. Specify the language settings that you want, and then click **Next**.
5. Log in as a user who has administrative credentials, and then click **OK**.

6 Click **Dell Factory Image Restore**.

7 In the **Dell Factory Image Restore** window, click **Next**.

8 Select the **Yes, reformat hard drive and restore system software to factory condition** checkbox.

9 Click **Next**. The computer is restored to the default factory configuration.

10 When the restore operation is completed, click **Finish** to restart the computer.

4

Getting Help

Obtaining Assistance

CAUTION: If you need to remove the computer cover, first disconnect the computer power and modem cables from all electrical outlets.

If you experience a problem with your computer, you can complete the following steps to diagnose and troubleshoot the problem:

1. See "Troubleshooting" on page 33 for information and procedures that pertain to the problem your computer is experiencing.
2. See "Pre-Boot Self Assessment (PSA) Diagnostics and Dell 32 Bit Diagnostics" on page 33 for procedures on how to run Dell Diagnostics.
3. Fill out the "Diagnostics Checklist" on page 57.
4. Use Dell's extensive suite of online services available at Dell Support (**support.dell.com**) for help with installation and troubleshooting procedures. See "Online Services" on page 54 for a more extensive list of Dell Support online.
5. If the preceding steps have not resolved the problem, see "Contacting Dell" on page 58.

NOTE: Call Dell Support from a telephone near or at the computer so that the support staff can assist you with any necessary procedures.

NOTE: Dell's Express Service Code system may not be available in all countries.

When prompted by Dell's automated telephone system, enter your Express Service Code to route the call directly to the proper support personnel.

For instructions on using the Dell Support, see "Technical Support and Customer Service" on page 54.

NOTE: Some of the following services are not always available in all locations outside the continental U.S. Call your local Dell representative for information on availability.

Technical Support and Customer Service

Dell's support service is available to answer your questions about Dell™ hardware. Our support staff uses computer-based diagnostics to provide fast, accurate answers.

To contact Dell's support service, see "Before You Call" on page 56, and then see the contact information for your region or go to **support.dell.com**.

DellConnect

DellConnect is a simple online access tool that allows a Dell service and support associate to access your computer through a broadband connection, diagnose your problem and repair it all under your supervision. You can access DellConnect from the Dell Support Center (see "Dell Support Center" on page 37).

Online Services

You can learn about Dell products and services on the following websites:

www.dell.com

www.dell.com/ap (Asian/Pacific countries only)

www.dell.com/jp (Japan only)

www.euro.dell.com (Europe only)

www.dell.com/la (Latin American and Caribbean countries)

www.dell.ca (Canada only)

You can access Dell Support through the following websites and e-mail addresses:

- Dell Support websites

  support.dell.com

  support.jp.dell.com (Japan only)

  support.euro.dell.com (Europe only)

- Dell Support e-mail addresses

  mobile_support@us.dell.com

  support@us.dell.com

  la-techsupport@dell.com (Latin America and Caribbean countries only)

  apsupport@dell.com (Asian/Pacific countries only)

- Dell Marketing and Sales e-mail addresses

  apmarketing@dell.com (Asian/Pacific countries only)

  sales_canada@dell.com (Canada only)

- Anonymous file transfer protocol (FTP)

  ftp.dell.com

  Log in as user: `anonymous`, and use your e-mail address as your password.

AutoTech Service

Dell's automated support service—AutoTech—provides recorded answers to the questions most frequently asked by Dell customers about their portable and desktop computers.

When you call AutoTech, use your touch-tone telephone to select the subjects that correspond to your questions. For the telephone number to call for your region, see "Contacting Dell" on page 58.

Automated Order-Status Service

To check on the status of any Dell products that you have ordered, you can go to **support.dell.com**, or you can call the automated order-status service. A recording prompts you for the information needed to locate and report on your order. For the telephone number to call for your region, see "Contacting Dell" on page 58.

Problems With Your Order

If you have a problem with your order, such as missing parts, wrong parts, or incorrect billing, contact Dell for customer assistance. Have your invoice or packing slip handy when you call. For the telephone number to call for your region, see "Contacting Dell" on page 58.

Product Information

If you need information about additional products available from Dell, or if you would like to place an order, visit the Dell website at **www.dell.com**. For the telephone number to call for your region or to speak to a sales specialist, see the "Contacting Dell" on page 58.

Returning Items for Warranty Repair or Credit

Prepare all items being returned, whether for repair or credit, as follows:

1. Call Dell to obtain a Return Material Authorization Number, and write it clearly and prominently on the outside of the box.

   For the telephone number to call for your region, see "Contacting Dell" on page 58.

2. Include a copy of the invoice and a letter describing the reason for the return.
3. Include a copy of the Diagnostics Checklist (see "Diagnostics Checklist" on page 57), indicating the tests that you have run and any error messages reported by the Dell Diagnostics (see "Pre-Boot Self Assessment (PSA) Diagnostics and Dell 32 Bit Diagnostics" on page 33).
4. Include any accessories that belong with the item(s) being returned (power cables, software floppy disks, guides, and so on) if the return is for credit.
5. Pack the equipment to be returned in the original (or equivalent) packing materials.

You are responsible for paying shipping expenses. You are also responsible for insuring any product returned, and you assume the risk of loss during shipment to Dell. Collect On Delivery (C.O.D.) packages are not accepted.

Returns that are missing any of the preceding requirements will be refused at Dell's receiving dock and returned to you.

Before You Call

NOTE: Have your Express Service Code ready when you call. The code helps Dell's automated-support telephone system direct your call more efficiently. You may also be asked for your Service Tag (located on the back or bottom of your computer).

Remember to fill out the Diagnostics Checklist (see "Diagnostics Checklist" on page 57). If possible, turn on your computer before you call Dell for assistance and call from a telephone at or near the computer. You may be asked to type some commands at the keyboard, relay detailed information during operations, or try other troubleshooting steps possible only at the computer itself. Ensure that the computer documentation is available.

CAUTION: Before working inside your computer, follow the safety instructions that shipped with your computer.

Diagnostics Checklist

Name:

Date:

Address:

Phone number:

Service Tag (bar code on the back or bottom of the computer):

Express Service Code:

Return Material Authorization Number (if provided by Dell support technician):

Operating system and version:

Devices:

Expansion cards:

Are you connected to a network? Yes No

Network, version, and network adapter:

Programs and versions:

See your operating system documentation to determine the contents of the system's start-up files. If the computer is connected to a printer, print each file. Otherwise, record the contents of each file before calling Dell.

Error message, beep code, or diagnostic code:

Description of problem and troubleshooting procedures you performed:

Contacting Dell

For customers in the United States, call 800-WWW-DELL (800-999-3355).

NOTE: If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, *Contacting Dell* techsheet, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

1. Visit **support.dell.com**.
2. Verify your country or region in the **Choose A Country/Region** drop-down menu at the bottom of the page.
3. Click **Contact Us** on the left side of the page.
4. Select the appropriate service or support link based on your need.
5. Choose the method of contacting Dell that is convenient for you.

A

Appendix

FCC Notice (U.S. Only)

FCC Class B

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause interference with radio and television reception. This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

NOTICE: The FCC regulations provide that changes or modifications not expressly approved by Dell Inc. could void your authority to operate this equipment.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference with radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the system with respect to the receiver.
- Move the system away from the receiver.
- Plug the system into a different outlet so that the system and the receiver are on different branch circuits.

If necessary, consult a representative of Dell Inc. or an experienced radio/television technician for additional suggestions.

The following information is provided on the device or devices covered in this document in compliance with the FCC regulations:

Product name:	Dell™ Studio 1535/1536
Model number:	PP33L
Company name:	Dell Inc. Worldwide Regulatory Compliance & Environmental Affairs One Dell Way Round Rock, TX 78682 USA 512-338-4400

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